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Case Report

Rare case of asymptomatic spontaneous coronary artery dissection

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ABSTRACT

We present a case of a 46-year-old woman who presented to the emergency room after a syncopal episode. Most of her initial workup did not lead to any diagnosis. However, the transthoracic echocardiogram showed new onset left ventricular dysfunction. Further, cardiac evaluation showed a chronic coronary artery dissection in the proximal left anterior descending artery. Syncope was related to vasovagal event but rapid plasma reagin being positive led to the question of whether the coronary artery dissection was secondary to vasculitic manifestation of prior syphilis infection. More research is needed to answer this question and to find such an association.

<**Learning objective:** Spontaneous coronary artery dissection (SCAD) is a rare disease of young adults that can present acutely as an acute coronary syndrome (ACS) with chest pain, as malignant ventricular arrhythmia, and even as sudden cardiac death. Our report is focused on evaluation and management of SCAD, more importantly to consider SCAD as a differential diagnosis in ACS in young patients, especially females. Our review also stresses the need for further research toward development of consensus on management of such patients.>

Introduction

Spontaneous coronary artery dissection (SCAD) is characterized by the presence of blood or thrombus, in false lumen, usually in the outer third of vessel wall [1]. This false lumen extends for a variable distance down coronary artery and can obstruct blood flow to a variable extent within true lumen, causing ischemia or infarction of the myocardium. Overall, left anterior descending coronary artery (LAD) is the most commonly involved coronary artery [2]. Right coronary artery SCAD is more common in males whereas left coronary circulation SCAD is more common in females [2]. It may present acutely as myocardial ischemia with chest pain, acute coronary syndromes (ACS), and malignant ventricular arrhythmia. We report a case of rare asymptomatic SCAD presenting as late ischemic cardiomyopathy.

Case report

A 46-year-old woman was brought to our hospital by Emergency Medical Services (EMS) after a syncopal episode and injury to her head while at a grocery store. Prior to the event, she reported lightheadedness and blurry vision but denied any palpitations, dyspnea, nausea, or vomiting. She reported losing consciousness for about 1–2 min and being lucid upon regaining consciousness. She also gave history of vague chest discomfort, which resolved on its own after she woke up. She denied similar symptoms in the past. Her medical history was significant for bronchial asthma, syphilis treated 18 years previously, and psoriasis. Her medications included iron supplements, montelukast, and salmeterol-fluticasone inhaler. There was no significant history of coronary artery disease or any other illness in the family. She denied smoking tobacco, drinking alcohol, or illicit drug use.

In the emergency room, she was hemodynamically stable and her physical examination was within normal limits. Electrocardiogram (ECG) showed her to be in normal sinus rhythm, with left-axis deviation and anteroseptal Q-waves with T wave inversions (Fig. 1). No prior ECG was available for comparison. Chest roentgenogram showed prominent pulmonary vasculature with cardiomegaly. Subsequently, she was admitted for further workup and management for syncope. Her cardiac markers were negative throughout the hospital stay. Telemetric monitoring was unremarkable. Echocardiogram showed regional wall motion abnormalities (anteroseptal and anterior akinesis), apical aneurysm, and severely reduced left ventricular ejection fraction (LVEF). In view of echocardiographical findings, she underwent

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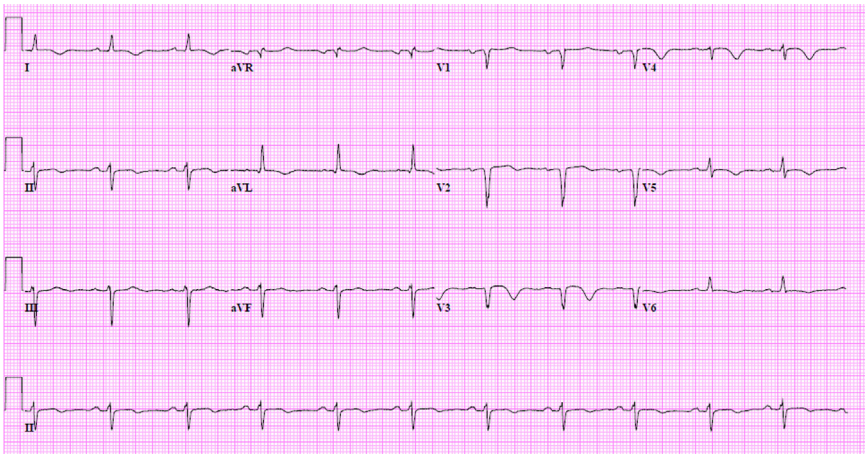

Fig. 1. Electrocardiogram showing normal sinus rhythm, left axis deviation, and anteroseptal Q-waves with T wave inversions.

coronary angiography which showed proximal left anterior descending artery (LAD) dissection with Thrombolysis in Myocardial Infarction (TIMI) angiographic flow grade III (Fig. 2). All other coronaries were patent with TIMI III flow. Intravascular ultrasound (IVUS) during the angiography confirmed a chronic complex dissection with false lumen, 15 mm in length in the proximal LAD (Fig. 3). The LAD territory was nonviable on myocardial perfusion imaging (MPI) (Fig. 4). On further testing she was diagnosed with tertiary syphilis (positive rapid plasma reagin titer of 1:4 with a positive fluorescent treponemal antibody absorption test) without central nervous system involvement (negative cerebrospinal fluid analysis). She had an elevated erythrocyte sedimentation rate of 102 mm/h and a negative C-reactive protein assay. After complete workup, syncope was attributed to vasovagal reflex based on a suggestive history. She was started on treatment for tertiary syphilis and managed with carvedilol, aspirin, simvastatin, and lisinopril for congestive heart failure. She was prescribed life vest upon discharge with a plan for automated implantable cardioverter-defibrillator placement as an outpatient for primary prevention of sudden cardiac death.

Discussion

SCAD is a rare cause of ACS predominantly affecting the young population. Its incidence varies from 0.07% to 1.1% among patients undergoing coronary angiography [3]. Clinically, it presents with chest pain, malignant ventricular arrhythmia, sudden death, or ACS because of acute ischemia [1,2,4].

Tweet et al. have reported characteristics, outcome, and management in one of the largest cohort of patients with SCAD. Eighty-seven consecutive patients were included in the report. The mean age was 42.6 years and 83% of the cohort were females. All patients in the series had presented with chest pain and/or ventricular arrhythmias [4]. Similarly, data from the Western Danish registry showed that the mean age for SCAD was around 48 ± 8.9 years, with a female preponderance (77%) and ACS was the most common presentation [2]. More recent analysis by Saw et al. showed the incidence of non-atherosclerotic SCAD being more common in older women, which is contrary to the belief that it mostly affects young women. Around 58% of all females in the study were older than 50 years [5].

Extreme exertion and peri-partum period are the most common predisposing factors in males (44%) and females (18%), respectively for SCAD, but it is rarely seen in elderly women with no coronary risk factors or cardiovascular disease. Other predisposing conditions include cocaine use, fibromuscular dysplasia (50% of patients), Elher-Danlos Syndrome, fibrillin gene variants, hormonal therapy, polycystic kidney disease, atherosclerosis, and chronic inflammation. However, in many cases no predisposing condition is found [2–4,6].

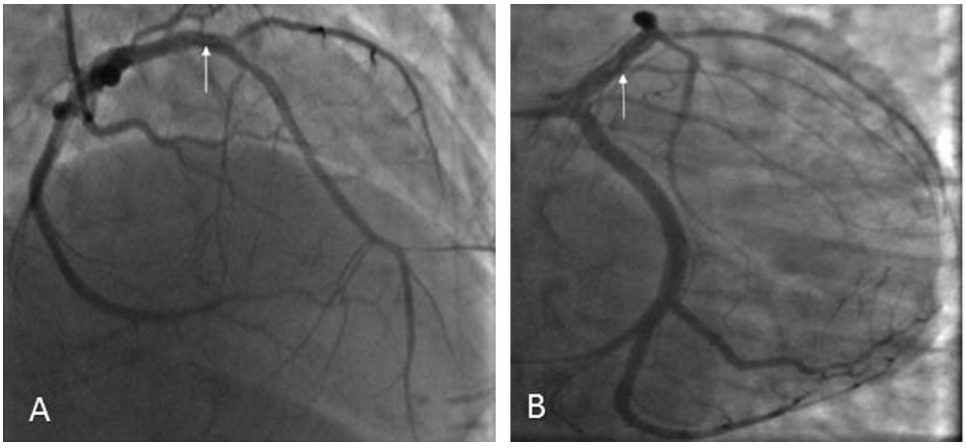

Fig. 2. Right anterior oblique cranial view (A) and left anterior oblique caudal view of left anterior descending artery showing dissection in proximal part (arrow).